

**Abstract**

Systems and methods apply ultrasound energy to the thoracic cavity. The systems and methods make use of an ultrasound energy applicator comprising an ultrasound transducer carried by a housing to generate ultrasound energy at a prescribed fundamental therapeutic frequency laying within a range of fundamental therapeutic frequencies not exceeding about 500 kHz. An ultrasonic coupling region is carried by the housing. The coupling region is adapted, in use, to contact skin. The coupling region is also sized to transcutaneously conduct ultrasound energy in a diverging beam that substantially covers an entire heart. The applicator can also include an assembly worn on the thorax, which stabilizes placement of the housing on the thorax during transcutaneous conduction of ultrasound energy.